

EC2600
Winter 2002
Homework Assignment #5

1. P.7-2

$$i = \frac{3}{2} [\cos(5\pi 10^7 t - 0.4\pi) - \cos(5\pi 10^7 t)] \text{ A}$$

2. P.7-7

$$i = -1.75 \times 10^{-3} \omega \sin(\omega t)(1 + 2 \cos(\omega t)) \text{ A}$$

3. P.8-5 (You have to use a trick to get his answer.)

$$y = 9 \times 10^5 - 15/2 - 30m, \quad m = 0, \pm 1, \pm 2, \dots$$

4. P.8-11

5. P.8-20 (Assume seawater is a good conductor.)

a. $\delta = \sqrt{2 / (\mu_o \sigma 10^4)}$

b. $\vec{H}(z,t) = \hat{y} H_o e^{-z/\delta} \cos(\omega t - z/\delta) \text{ A/m}, \quad \vec{E}(z,t) = \hat{x} \frac{\sqrt{2} H_o}{\sigma \delta} e^{-z/\delta} \cos(\omega t - z/\delta + \pi/4) \text{ V/m}$